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COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS AND ON THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS

Sub-Committee of Experts on the
Transport of Dangerous Goods
(Twentieth session, 3-12 December 2001,
agenda item 3 (b))

TANKS

Miscellaneous proposals

Multimodal tank transport

MAWP, design pressure and test pressure of portable tanks

Transmitted by the International Union of Railways (UIC/IUR)

Reference is made to the discussions in the twenty-first session of the Committee of Experts on the Transport of Dangerous Goods, see paras. 83 to 86 of the report ST/SG/AC.10/27.

The UIC remains of the opinion that, in order to avoid inconsistencies in the Model Regulations, the requirements should be simplified. This is an urgent matter, because chapter 6.7 has now been introduced into modal regulations and manufacturers, operators and carriers of portable tanks have now to comply with these regulations. As has been pointed out, the definitions for MAWP and design pressure in chapter 6.7 are not consistent with the test pressures specified in the tank instructions in chapter 4.2

Given that minimum test pressures are now prescribed for tanks for all substances with a Tank Instruction, the question may be put forward:

is there still a need for the alternatives under letter (b) in the definitions of Design pressure and Maximum allowable working pressure (MAWP) in 6.7.2.1?

This question should also be considered in the light of the fact that all highly volatile liquids of class 3, p.g. I are now assigned to Tank Instruction T11, with a minimum test pressure of 6 bar, which should be enough for such liquids.

Another inconsistency in the definitions mentioned before is the following:

The design pressure is defined as the pressure to be used in calculations required by a recognized pressure vessel code.

Under letter (b) of the definition is, however, said that the MAWP shall not be less than the maximum effective gauge pressure to which the shell is designed, etc.

This means, we have two different design pressures in the part Definitions, the difference being the head pressure, with a minimum of 0.35 bar.

Another practical problem is the following:

In the first table of 4.2.5.2.6 minimum test pressures for each portable tank instruction are indicated; there is however no indication about the MAWP, associated with those test pressures. On the other hand, in the definition of MAWP in 6.7.2.1 no relation tot the minimum test pressures in 4.2.5.2.6 is indicated.

Theoretically this would mean that, although minimum test pressures are given for all substances, assigned to the same tank instruction, the MAWP would have to be calculated for each substance to be allowed in the tank individually. It would also be very user-friendly to fix a minimum value for the MAWP for each tank instruction. This MAWP could then also be marked on the tank.

Proposal:

The UIC is of the opinion that all problems mentioned before could be solved by deleting in 6.7.2.1 in the Definitions of Design pressure and MAWP the texts under (b), which have become obsolete after introduction of the portable tank instructions.

If this proposal is adopted, the definitions of Design pressure and MAWP are identical, and as a general rule the MAWP would also be equal tot two thirds of the minimum test pressures specified in the applicable portable tank instruction in 4.2.5.2.6.

Portable Tanks for non-refrigerated liquefied gases

The situation for these tanks is different. In tank construction T50 MAWP's are indicated for all individual gases. However, the minimum test pressures, contrary to 4.2.5.2.6 (T1 – T22), are not indicated in T50, although indication of the test pressure is prescribed in 6.7.3.16.1. The relation between MAWP and test pressure is not to be found in T50. It is however hidden in 6.7.3.3.2 and in the definitions of design pressure and MAWP in 6.7.3.1

This is not a user-friendly system and the UIC therefore proposes to add the following to the definition of test pressure at the end of 6.7.3.1:

The minimum test pressure is equal to 1.3 times the design pressure (see 6.7.3.3.2), which means 1,3 x (MAWP + 0,35) bar (see tank instruction T50 in 4.2.5.2.6).

An even more user-friendly solution would be the creation of an additional column, indicating the minimum test pressures, in T50.
